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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,852	04/20/2001	Richard J. Allen	GB 000051	1431

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PHILIPS ELECTRONICS NORTH AMERICAN CORP
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TARRYTOWN, NY 10591

EXAMINER

MCCARTNEY, LINZY T

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/838,852

Applicant(s)

ALLEN, RICHARD J. 

Examiner

Linzy McCartney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 and 8 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 6,023,263 to Wood in view of U.S. Patent No. 5,856,829 to Gray, III et al. (Gray) further in view of the admitted prior art and further in view of U.S. Patent No. 6,442,303 to Meijers et al. (Meijers).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this

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rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

a. Referring to claim 1, Wood discloses obtaining one or more further display images from one or more further viewpoints aligned along the first axis with the first viewpoint and displaced from the first viewpoint by a multiple of a displacement value, by updating the first axis value of the first display image using the displacement value (column 6, lines 21-26). Wood does not explicitly disclose generating a model of the scene using a homogenous coordinate system which uses first, second and third orthogonal axes and a homogeneity value; obtaining a first display image from a first viewpoint by transforming vertex positions from the 3D scene into vertex positions in a frustum viewing region using a projection matrix, the projection matrix having terms derived from the position of the viewpoint relative to the frustum viewing region; or updating the first axis value of the first display image using a homogeneity value. Gray discloses generating a model of the scene using a homogenous coordinate system which uses first, second, and third orthogonal axes and a homogeneity value (column 47, lines 32-47). Inherently, a change (i.e. update) in the coordinates of a homogenized scene model requires the use of a homogeneity value. Applicant discloses that it is known to generate an image of a 3D scene from a known viewpoint by carrying out transformation on vertex positions from the 3D scene into vertex positions in a frustum viewing region, using a projection matrix (Applicant, page 2, paragraph 2). Meijers discloses that the

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projection matrix has terms derived from the position of the viewpoint relative to the frustum viewing region (column 4, lines 11-14; column 5, equation 1). At the time invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Wood with the teachings of Gray, the admitted prior art, and Meijers. The suggestion/motivation for doing so would have been to avoid the additional cost and complexity required in computing both a z value and the $1/w$ value (Gray, column 5, line 56 – column 6, line 2), to improve image realism of the displayed image (Applicant, page 2, paragraph 2) and to define the viewing frustum for subsequent calculations (Meijers, column 4, lines 11-13).

b. Referring to claim 2, Wood discloses wherein texture and lighting conditions are applied when creating the first image (column 6, lines 53-58 and column 7, lines 8-17).

c. Referring to claim 3, Wood does not explicitly disclose wherein the homogeneity value is inversely proportional to a depth value measured along the third orthogonal axis, and is used for interpolation of texture values. Gray discloses wherein the homogeneity value is inversely proportional to a depth value measured along the third orthogonal axis, and is used for interpolation of texture values (column 8, 38-43; Abstract). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Wood with the disclosure of Gray. The suggestion/motivation for doing so would have been to avoid the additional cost and complexity required in computing both a z value and the $1/w$ value (Gray, column 5, line 56 – column 6, line 2).

- d. Referring to claim 4, Wood discloses wherein the first image and the one or more further images are combined to form an interleaved image for supply to an autostereoscopic display device (column 5, lines 37-62 and column 6, lines 16-49).
- e. Referring to claim 5, Wood discloses wherein the one or more further images are obtained by a graphics processing device without further use of the 3D scene data (column 6, lines 21-26).
- f. Referring to claim 6, Wood discloses a graphics processor for performing perspective projections (column 5, lines 42-47 and Fig. 4). Wood also discloses means for generating one or more further images from one or more further viewpoints aligned along the first axis with the first viewpoint and displaced from the first viewpoint by a multiple of a displacement value, by updating the first axis of the first image in the viewing region using the displacement value (column 6, lines 21-26). Woods does not explicitly disclose a memory device storing a model of the scene using a homogenous coordinate system which uses first, second, and third orthogonal axes and a homogeneity value; a graphics processor for transforming vertex positions from the 3D scene into vertex positions in a frustum viewing region to define a first image in the viewing region, the graphics processor deriving a projection matrix in dependence on the position of the viewpoint relative to the frustum viewing region, the projection matrix being used to translate image coordinates from the 3D scene into the viewing region; means for updating the first axis value of the first image in the viewing region using a homogeneity value. Gray discloses a memory device storing a model of the scene using a homogenous coordinate system which uses first, second, and third orthogonal axes and a homogeneity

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value (column 47, lines 32-47 and Fig. 1A). As noted in the rejection of claim 1 above, a change (i.e. update) in the coordinates of a homogenized scene model inherently requires the use of a homogeneity value. Applicant discloses that it known for a graphics card to generate an image of a 3D scene from a known viewpoint by carrying out transformation on vertex positions from the 3D scene into vertex positions in a frustum viewing region, using a projection matrix (Applicant, page 2, paragraphs 1 and 2). Meijers discloses the graphics processor deriving a projection matrix in dependence on the position of the viewpoint relative to the frustum viewing region (column 4, lines 11-14; column 5, equation 1; column 3, lines 44-62; Fig. 5). At the time invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Wood with the teachings of Gray, the admitted prior art, and Meijers. The suggestion/motivation for doing so would have been to avoid the additional cost and complexity required in computing both a z value and the $1/w$ value (Gray, column 5, line 56 – column 6, line 2), to improve image realism of the displayed image (Applicant, page 2, paragraph 2) and to define the viewing frustum for subsequent calculations (Meijers, column 4, lines 11-13).

g. Referring to claim 8, Wood discloses generating multiple images used to drive the display panel as an autostereoscopic display (column 5, lines 37-41).

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood in view of Gray further in view of the admitted prior art yet further in view of Meijers as applied to claim 6 above and further in view of U.S. Patent No. 6,014,144 to Nelson et al. (Nelson).

a. Referring to claim 7, the modified apparatus of Wood does not explicitly disclose wherein the graphics processor comprises a graphics acceleration board. Nelson discloses

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the aforementioned limitation (Fig. 2). At the time invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of Wood with Nelson. The suggestion/motivation for doing so would have been to off-load the rendering functions from the host processor thus improving system performance (Nelson, column 1, lines 13-17).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Linzy McCartney** whose telephone number is **(703) 605-0745**. The examiner can normally be reached on Mon-Friday (8:00AM-5:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at **(703) 305-9798**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

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April 28, 2003

A handwritten signature in black ink, appearing to read "Mark Zimmerman", with a long horizontal flourish extending to the right.

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600